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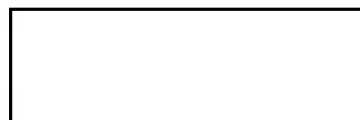
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Soviet Manpower Prospects
for the 1970's

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Introduction

The Soviet Union has not published data on the expected growth of the labor force during the 1970's; some Soviet and Western economists have expressed concern about the adequacy of future manpower supplies(1). After reviewing the major changes in the size and composition of the Soviet population, labor supply, and labor force during the 1960's, this article presents projections of the trends in manpower availability and the composition of the labor force for the 1970's and discusses some of the implications of these trends for future economic growth.

Trends in the 1960's

Population and Labor Supply

1. Between July 1965 and July 1970, the total population of the USSR increased by 11.9 million, substantially less than the growth of 16.6 million during the first half of the 1960's. The labor supply, however, increased by more than 10.5 million during 1966-70, compared with 4.7 million during 1961-65 (see Table 1).

Table 1

USSR: Trends in Population and Labor Force, 1960-70 (a)

Category	(Million Persons, Mid-year)			Absolute Change	
	1960	1965	1970	1961-65	1966-70
Total Population	214.3	230.9	242.8	16.6	11.9
Of which:					
Population 14 years of age and older	151.3	164.7	178.2	13.4	13.5
Full-time students	9.5	18.2	21.2	8.7	3.0
Labor supply (b)	141.8	146.5	157.0	4.7	10.5
Labor force	110.6	117.9	124.2	7.3	6.3
Armed forces	3.3	3.2	3.3	-0.1	0.1
Civilian labor force	107.3	114.7	120.9	7.4	6.2

(a) Because of rounding, components may not add to the totals shown.

(b) Population 14 years and older, minus full-time students.

2. The slowdown in population growth was caused by sharply diminished birth rates in recent years and slightly higher death rates. The birth rate fell sharply from 24.9 per thousand persons in 1960 to 17.4 per thousand in 1970. This decline was caused both by the decrease in the number of women in the prime child-bearing ages (20 to 34 years) as a result of the low birth rates during World War II and by a decrease in the average number of children per family. The increase in the death rate, from 7.1 per thousand persons in 1960 to 8.2 per thousand in 1970, reflects the gradual "aging" of the Soviet population. In other words, a larger proportion of the population was in the upper age groups where death rates are higher. As a consequence of the diverging trends in the birth and death rates, the natural increase (the net addition to the population) in 1970 was only about half the rate in 1960, 9.2 per thousand persons compared with 17.8

3. Several factors accounted for the relatively small increments to the labor supply in the early 1960's. Because of World War II, fewer persons were reaching working age in the early 1960's. In 1962, for example, there were only 72% as many youths 15 to 19 years of age as in 1959. By 1970, the number of persons 15 to 19 had grown to 87% above the 1962 level,

reflecting the effects of the postwar baby boom. Moreover, reforms in education cut the number of youths available for work in the early part of the decade and increased the supply of youths in the late 1960's. The conversion of the elementary and secondary schools from a ten-year system to an eleven-year system in 1959 delayed the entry of teenagers into the labor supply. At the same time, the Soviet Union embarked on a campaign to increase the share of youths continuing their education beyond the elementary grades. During 1961-65 the number of full-time students nearly doubled -- from 9.5 million to 18.2 million -- with most of the growth occurring in general schools (3).

4. In the latter half of the 1960's, the number of full-time students increased by only 3.0 million, despite a rise of 9.6 million in the student-age population (12 to 24). A cut in general education from 11 to 10 years beginning in 1966 resulted in two graduating classes in June 1966 -- from the phased out 11th grade and simultaneously from the 10th grade. Each of the classes graduated about 1.3 million and approximately doubled the number of students entering the labor supply that year. A slowdown in the rate of growth of enrollments at full-time specialized secondary schools (tekhnikums) and higher educational institutions (Vyssheye uchebnoye zavedeniye -- VUZs) also contributed to the overall

decline in the rate of growth of full-time students in recent years. During 1966-70, enrollments at these schools rose by 47% compared with 52% during 1961-65.

Total Labor Force and Civilian Labor Force

5. The relatively slow growth of the labor supply between 1960 and 1965 did not retard the growth of the labor force. During this period, the total labor force increased by 7.3 million, compared with an increase of 6.3 million between 1965 and 1970. The average annual rate of growth of the labor force declined from 1.3% during the first half of the decade to 1.0% during the latter half. The increase during the earlier period was made possible by rising labor force participation rates of both males and females. For example, the proportion of males 20-29 years of age in the labor force increased from 91.0% in 1959 to an estimated 95.6% in 1965 and the employed proportion of females in this age group from 80.4% to 86.1%. Except for teenagers, the participation rates of all adult age groups are estimated to have increased during 1961-65. Participation rates among teenagers 14-19 years of age fell during this period because a larger share of youths attended full-time schools.

6. The rise in participation rates in the early 1960's was the result of a labor policy employing both coercion and incentives to get non-working adults into the labor force. During 1958-61, various republics passed so-called "antiparasite" laws, which subjected non-working adults to compulsory labor and exile. Under these laws, youths who dropped out of school and failed to go to work, as well as persons engaged in illegal private activities, were coerced into "socially useful labor" in state-owned enterprises or on collective farms. The antiparasite laws were modified during 1965-67, narrowing the concept of parasitism and abolishing drumhead proceedings by extra-legal commissions.

7. Authorities sought also to assist employment of housewives by expanding child-care facilities -- the number of places in state-run nurseries and kindergartens doubled from 3.1 million in 1960 to 6.2 million in 1965. During the same period, the total number of pre-school age children declined from 34 million to 33 million. Consequently, the proportion of children cared for by state-run institutions rose from 9% in 1960 to almost 19% in 1965.

8. The USSR tried to match jobs and workers by alleviating unfavorable employment situations in small towns. Participation rates for household members (other than the

head of the household) were lower in small urban areas than in larger industrial centers. Jobs for wives and other adult family members were often non-existent in towns where, for example, industrial activity was limited to one or two plants. As a result, Soviet authorities tried to broaden employment opportunities for smalltown households by prohibiting new factories in urban areas. This policy has tended to boost adult participation rates (4).

9. Labor force participation rates are not believed to have increased during the latter half of the 1960's. By 1965 they had reached levels, except for youths, beyond which expansion was nearly impossible. Moreover, some labor policies of the regime may have begun to have a negative impact on participation rates. Beginning in the mid-1950's the regime introduced a series of welfare reforms, expanding eligibility for retirement pensions and increasing the size of the benefits. These reforms culminated in 1965 when 25 to 30 million collective farmers and their families were placed under a state social insurance system. Until then, the establishment of pension programs on collective farms had been optional and entirely at the expense of the individual farm. As a result until 1965 many farms had no program at all, and those with a program usually failed to match the benefits received by workers at state enterprises.

10. The expanded welfare system has permitted many persons to retire who would not otherwise be able to do so. During 1966-70 the total number of pensioners increased from 26 million to 41 million, more than twice the annual rate recorded during 1961-65. The law in effect during the late 1960's granted working pensioners employed in various urban occupations only half of their pensions (75% if employed in the Urals, Siberia, or the Far East) regardless of earnings. Those employed in agriculture and mining received full pensions. In 1965, 1.5 million persons, or 15% of all old age pensioners, received retirement pensions while continuing to work in state enterprises. In 1956, however, 60% of all pensioners worked.

Structure of the Civilian Labor Force

11. The share of civilian labor force engaged in agriculture declined from 43% in 1960 to 31% in 1970 (see Table 2). During 1961-65, an average of one million persons annually moved to the cities from the countryside, spurring the growth in the non-agricultural labor force. Since the mid-1960's, the rural-urban migration has slowed to a trickle; the slowdown was attributable, according to Soviet sources,

Table 2

USSR: Trends in the Civilian Labor Force by Class of Worker and by Branch of the Economy, 1960-70 (a)

(Million persons, midyear)					
Category	1960	1965	1970	Absolute Change 1961-65	1966-70
Total civilian labor force	107.3	114.7	120.9	7.4	6.2
<u>By class of worker</u>					
Workers in the social economy (b)	97.8	106.0	113.2	8.2	7.2
Self-employed and unpaid family workers	9.5	8.7	7.7	-0.8	-1.0
<u>By sector of the economy</u>					
Agricultural sector	46.6	42.3	37.5	-4.3	-4.8
Non-agricultural sector	60.7	72.4	83.4	11.7	11.0
Industry	22.6	27.4	31.6	4.8	4.2
Services	20.1	26.4	32.1	6.3	5.7
Other (c)	18.0	18.6	19.7	0.6	1.1

- a. Because of rounding, components may not add to the totals shown.
- b. Including wage and salary workers in state enterprises and workers on collective farms.
- c. Including forestry, transportation, communications, and construction.

to the rapid increase in rural incomes in recent years. Offsetting somewhat the migration patterns of the 1960's was the trend in the number of self-employed and unpaid family members working on private plots. Employment in this sector of agriculture reflected the changing policy toward private farming during the decade, increasing in the early 1960's as restrictions were eased, decreasing in late 1960's as restrictions were tightened. Nevertheless, throughout the 1960's the total agricultural labor force declined slowly, following the general trend since 1950.

12. A second structural change occurring in the civilian labor force has been an increase in the number of workers in the services sector as a proportion of the non-agricultural labor force, from 33% in 1960 to 38% in 1970 (5). The 60% rise in employment in the services sector was about half again as large as the growth in the industrial work force during this period. The Soviet Union has apparently reached the state of development where the pace of expansion of employment in industry slows while the rate of employment growth in tertiary activities accelerates. Considered as "unproductive" by Soviet planners, the USSR's services sector was given generally the lowest priority until recently.

As a result, while the urban population increased by 65% between 1940 and 1960, the number of persons employed in domestic trade activities in urban areas rose by only 60%. Between 1960 and 1966, however, employment in urban domestic trade increased by 39% while the urban population grew by 20%. Since 1960, planners have come to realize that the inefficiencies in the distribution system had an adverse effect on the labor force. The hours required each day for the average Soviet family to provide its household needs causes absenteeism and lower productivity and forces some housewives to stay out of the labor force.

Trends in the 1970s

13. The Soviet Union entered the 1970's concerned about its manpower prospects. Shortages of skilled workers and labor in large cities have been longstanding features of the Soviet labor scene. Beginning in 1967, however, articles appeared in the press concerning a general, nationwide manpower shortage. After annual plans for the labor force were exceeded in 1960-65, a shortfall in the manpower plan for industry occurred in 1966. In 1967, only three-fourths of the plan for additional wage and salary

workers was met, and planners revised downward the manpower goals for 1970 established in the five-year plan (1966-70). The tight labor market did not ease during 1969-73. Indeed, industrial employment grew by only 1.4% a year during 1971-73, compared with the usual 3% to 4% annual rate of growth. The chairman of the RSFSR Committee for the Utilization of Labor Resources, K. Novikov, attributed the labor shortage to the following factors: —

- An insufficient rate of growth in labor productivity;
- An inability to raise participation rates from their already high levels;
- A reduction in the rural-urban migration;
- An excessive concentration of industry in large cities;
- An increasing delay in youths joining the labor force because of longer schooling; and
- A misallocation and a misuse of existing labor. (5a).

14. The current situation of a generally tight labor market is likely to prevail in the foreseeable future. The evidence does not suggest, however, that Soviet leaders are facing a massive or irreversible manpower shortage. The present enormous inefficiency in the use of labor, as

evidenced by the fact that the labor force in the USSR is half again as large as that in the United States but is able to produce only about one-half the amount of goods and services, provides vast opportunities to improve the productivity of the existing labor. Partial success in making use of such opportunities for labor saving would tend to offset, at least in part, the effects of the several adverse manpower trends described below.

Population and Labor Supply

15. During the remainder of the 1970's the total population of the USSR is expected to increase by 24 million, or about 1% a year (see Table 3) -- the same rate recorded during the last half of the 1960's. Increments to the adult population during the 1970's will be affected increasingly by the sharp decline in the birth rate in the 1960's. Between 1970 and 1975, the adult population will grow by 16.5 million, compared with about 12.5 million during 1976-80. The teenage segment (14 to 19 years) of the total adult population will decline from about 15% in 1970 to 13% in 1980. However, growth in labor supply -- the source of labor force growth -- will be determined not only by demographic changes but also by the regime's policy toward education.

Table 3

USSR: Trends in Population and Labor Force, 1970-80 (a)

(million Persons, Midyear)					
Category	1970	1975	1970	1971-75	1976-80
Total population	242.8	254.6	267.7	11.8	13.1
Of which:					
Population					
14 years of					
age and older	178.2	194.7	207.4	16.5	12.7
Full-time students	21.2	23.5	21.3	2.3	-2.2
Labor supply	157.0	171.2	186.1	14.2	14.9
Labor force	124.2	134.9	146.9	10.7	12.0
Armed forces	3.3	3.3	3.3	0	0
Civilian labor force	120.9	131.6	143.6	10.7	12.0

a. Because of rounding, components may not add to the totals shown.

16. Education goals for the 1970's have not been announced, and the past history of sharp swings in policy -- from rapid expansion in the early 1960's to slow growth in the late 1960's -- makes predicting the future policy hazardous. If a policy is followed of expanding full-time education, it will tend to restrict the growth of the labor force by holding more youths in school. If a policy prevails of providing universal, full-time education to youths 7 to 18

years of age while expanding higher and secondary specialized education at the rate recorded during the 1960's, the number of students would increase by more than half by 1980 while the resulting dearth of young workers would restrict the growth of the labor force to less than 1% a year. These results suggest that Soviet leaders would find this to be an unacceptable policy.

17. Soviet authorities could follow a "neutral" policy toward education, holding labor force participation rates of youths at current levels and allowing enrollment in fulltime education to fluctuate according to the number of youths. This would result in an increase in the number of students during 1971-76, but a slight decline would occur thereafter. This policy would not substantially depress the rate of growth of the labor force during the 1970's. Consequently, for projection purposes, it is assumed that the USSR will follow the latter policy -- that labor force participation rates among school-age youths (14 to 24) will remain constant. It should be stressed that the growth rate of the projected labor force would be lower to the extent that official policy calls for a continued increase in student enrollments in the latter half of the decade. In this sense, the projection set forth below can be viewed as an upper limit with the possibility that actual employment may not reach that level.

Total Labor Force and Civilian Labor Force

18. The total labor force and civilian labor force are projected to increase by 10.7 million during 1971-75 and by 12.0 million during 1976-80.* Thus, during the 1970's the labor force is expected to grow more rapidly than during the late 1960's, but the increments to the labor force will gradually diminish after 1975. Given the assumption of the leveling off of student enrollments in 1976 and declines in 1977-80, the average annual rate of growth of the total labor force will be slightly higher during the 1970's than during the 1960's; 1.7% compared with 1.2%.

19. The projection of civilian labor force is based on the assumption that the size of the armed forces will not change. A reduction in the armed forces would swell the ranks of the civilian labor force and ease the manpower pinch.

* The methodology used in making the projections is described in, Prospects for Soviet Economic Growth in the 1970's, Bruxelles, 1971, p. 141-142. For the period 1970-80 the total labor force was projected by applying estimated labor force participation rates derived from 1970 census data to estimates and projections of the population by age and sex. The components of the labor force were projected as follows:

The armed forces were assumed to remain constant throughout the period.

The labor force on the state farms and on collective farms for 1971-80 is found by projecting least squares regression lines based on 1959-70 data. The following relationships were derived:

state farms $Y = 7,051.21 + 243.61 X$ ($R^2 = .74$)

collective farms $Y = 31,154.12 - 929.11 X$ ($R^2 = .95$)

where X is time denoted by yearly periods (e.g. 1971 is period 13).

The non-agricultural labor force was derived as the difference between the total civilian labor force and the agricultural labor force.

Under similar conditions in the late 1950's and early 1960's, demobilizations were carried out. But tensions arising from the China border problems and the invasion of Czechoslovakia have caused a gradual expansion of military manpower since 1965. Moreover, the pressures that led to the maintenance of the present level of military manpower are unlikely to subside, precluding a sizable demobilization during the remainder of the decade.

Structure of the Civilian Labor Force

20. More uncertainty is involved in projecting the structure of the civilian labor force than in estimating its size because of the influence of planning decisions on the allocation of labor and because of Soviet reticence concerning future goals. Projections by class of worker assume that the trends of the 1960's for collective farmers and self-employed family workers will continue during the 1970's. The increase in the state labor force (wage and salary workers) is derived as a residual -- total civilian labor force minus collective and unpaid family workers.

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Non-agricultural Labor Force

21. During the current decade the non-agricultural labor force is projected to increase by approximately one-third, from 83.4 million to 114.5 million (see Table 4). Trends in employment among the sectors of the non-agricultural labor force during the remainder of the 1970's can only be conjectural.

22. So far during the 1970's industrial employment has grown by 1.4% a year. The projections arbitrarily assume that the industrial labor force will grow at the same rate in 1974-80 -- a pace much slower than the annual average of 3.4% recorded during the 1960's. As a result of this assumption about three-quarters of the increase in the non-agricultural labor force in the projection occurs in the non-industrial sectors. The services sector is likely to receive the largest number of new workers in the 1970's. If employment in the services sector grows at the same rate as recorded during 1961-68, one out of every two workers added during the 1970's to the non-agricultural branches will be added to the services sector.

Table 4

USSR: Trends in the Civilian Labor Force by Class
of Worker and by Branch of the Economy, 1970-80 (a)

(Million Persons, Midyear)					
<u>Category</u>	<u>1970</u>	<u>1973</u>	<u>1980</u>	<u>1971-75</u>	<u>1976-80</u>
Total civilian labor force	120.9	131.6	143.6	10.7	12.0
By class of worker					
Workers in the social economy (b)	118.5	130.5	141.9	12.0	11.4
Self-employed and unpaid family workers	7.7	6.9	6.0	-0.8	-0.9
By sector of the economy					
Agricultural sector	37.5	33.4	29.1	-4.1	-4.3
Non-agricultural sector	83.4	98.2	114.5	14.8	16.3
Industry	31.6	33.8	36.3	2.2	2.5
Other (c)	51.8	64.4	78.2	12.6	13.8

- a. Because of rounding, components may not add to the totals shown.
- b. Including wage and salary workers in state enterprises and workers on collective farms.
- c. Including forestry, transportation, communications, construction, and services.

23. In the projection, the agricultural labor force declines by 22% or 8.4 million persons -- from 37.5 million in 1970 to 29.1 million in 1980. In 1980, approximately one worker in five will be employed in agriculture, compared with about one worker in three in 1970 (6). Recent projections of the US economy in 1980 indicate that only three workers in 100 will be employed in agriculture. The projection for the Soviet Union implies that a steady growth will occur in the productivity of the agricultural labor force in the 1970's. At the same time, the projections assume that Soviet agriculture will not achieve a breakthrough sufficient to permit a large-scale shift from agricultural to non-agricultural employment.

24. It is further assumed that employment during the current decade in the subsectors of agriculture -- state farms, collective farms, and private plots -- will follow the trends recorded during 1959-70. As a consequence the labor force on state farms would increase by 31% during the 1970's and account for more than two-fifths of the total agricultural labor force in 1980 compared to one-fourth in 1970. _____→

If past trends continue, the number of workers on collective farms will decline by almost one-half by 1980, from 20.3 million in 1970 to 10.7 million in 1980. Labor on private plots will be reduced by about 22% and account for only about 21% of the total agricultural labor force in 1980.

Implications of Manpower Trends for Economic Growth

25. At best, the average annual rate of growth of the non-agricultural labor force during the 1970's is expected to match the average 3.2% yearly rate of the 1960's. If participation rates decline or agricultural problems cause labor to be diverted to that sector, the growth of labor supplied to the non-agricultural sectors in the 1970's could be substantially less. A slowdown would retard the growth of the Soviet economy. Several detailed studies of economic growth rates in postwar Europe have postulated that abundant labor is necessary to sustain the growth process. For example, Charles Kindleberger concludes that:

The major factor shaping the remarkable economic growth which most of Europe has experienced since 1950 has been the availability of a large supply of labor... With the exhaustion of Europe's excess supplies of labor, in the early 1960's, the high rates of economic growth of the 1950's are slowing down...(7).

The manpower situation in the Soviet Union has resembled the conditions in Western Europe: labor was in relatively large supply in the 1950's and in increasingly short supply during the 1960's. The projected rate of growth in the labor force indicates that this stringency may ease slightly in the USSR during the 1970's. Other factors that may tend to reduce the effect or economic growth of future additions to the labor force include:

- A slowdown in the rate of growth of capital stocks,
- A shift of employment from sectors with relatively high productivity to sectors with relatively low productivity, and
- A slower rate of growth in the quality of the labor force.

26. Structural shifts in the labor force during the 1970's are likely to depress the growth rate of the economy. The growth rate of labor productivity in industry traditionally has been much greater than the rates for other sectors of the economy. This meant that the contribution to economic growth of an additional worker in industry was greater than an additional worker employed in any other sector. For years, economic growth was stimulated by the process of expanding the work force rapidly in sectors with

high rates of growth of labor productivity. During the 1960's the structure of the labor force in the USSR began to shift. Additions to the industrial labor force slowed while workers were added to the services sector at an accelerated pace. This trend is expected to continue in the 1970's.

27. Recent projections of the labor force of the United States through 1980 indicate trends analogous to those projected for the USSR. One US study estimates that the shift in the structure of the labor force from the producing sectors to the services sectors will cause a slight decline in the average annual growth rate of the economy from more than 3% a year during the 1960's to 2.8% annually during the 1970's (8). The differential in the growth rates of labor productivity between the producing and services sector is narrower in the United States than in the Soviet Union. Thus the impact on the growth rate of the economy of a shift in the structure of the labor force from the high-efficiency producing sectors to the low-efficiency services sectors could be much greater in the Soviet Union than in the United States.

28. A third factor that may impede the economic growth rate of the USSR in the 1970's is a possible slowdown in the qualitative improvement of the labor force.

Education is the most important qualitative factor -- it determines both the types of work an individual can do and his efficiency in doing them. Edward Denison estimated that between 1950 and 1962 the increase in the educational attainment of the labor force contributed about 15% to the economic growth of the United States and approximately 5% to the growth of nine countries in northwestern Europe (9). The median years of school completed by the adult population serves as an indicator of the educational attainment of the labor force. According to estimates and projections made by the US Bureau of the Census, between 1960 and 1970 the median years of school attained by the adult population in the Soviet Union rose by 24%, from 5.9 years to 7.3 years. Between 1970 and 1980, the median years of school is projected to grow by about 11%, to 8.1 years (10). This suggests that whatever contribution education made in the past to Soviet economic growth was probably greater than its impact in the future.

Footnotes

- (1) A manpower shortage is defined by Soviet economists as the difference between the total number of workers called for in the plan and the number of workers actually employed.
- (2) Definitions of terms used in this article are as follows: adult population includes all persons 14 years of age and older; labor supply is the adult population exclusive of full-time students; and labor force is the employed portion of the labor supply, including the armed forces as well as the civilian labor force.
- (3) Grades 7 through 11 only. Students in grades 1 through 6 of the full-time general schools are assumed to be less than 14 years of age.
- (4) Despite the prohibition, complaints about the continued concentration of investment frequently appear in the Soviet press.
- (5) The services sector includes education, health, housing, communal economy, trade and catering, banking and insurance, government administration, and science.
- (5a) Kommunist, No. 13, 1969, p. 99-108.
- (6)
- (7) Charles P. Kindleberger, Europe's Postwar Growth: The Role of Labor Supply, Cambridge, Massachusetts, Harvard University Press, 1967, p. 3.
- (8) Gilbert Burck, "There'll Be Less Leisure Than You Think", Fortune, March 1970, p. 88.
- (9) Edward F. Denison, Why Growth Rates Differ: Postwar Experience in Nine Western Countries, The Brookings Institution, Washington, D.C., 1967, p. 229-317.
- (10) US Bureau of the Census, Estimates and Projections of Educational Attainment in the USSR: 1950-1975, Series p-91, No. 16, by Ann S. Goodman and Murray Feshbach, Washington, 1967, p. 17.

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